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**“Effective ICT Tools to Teach English Vocabulary”**

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**Autor:**

Edgar Salvador Zuña Morocho

CI: 0105024897

Correo: zujds@yahoo.com

**Directora:**

Mgt. Yola Indaura Chica Cárdenas

CI: 0102186772

**Cuenca - Ecuador**

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## RESUMEN

El vocabulario es considerado una parte esencial de cualquier idioma ya que, sin él, la comunicación no podría tener lugar. Las tecnologías de la información y las comunicaciones (TIC) han desempeñado un papel crucial en la enseñanza del vocabulario debido a sus características prácticas. Sin embargo, los maestros no han podido aprovecharlas al máximo. Por lo tanto, esta investigación exploró el uso de las TIC como herramientas de aprendizaje de vocabulario. Y trata de responder que TIC han demostrado ser las más eficientes en la enseñanza del vocabulario en inglés y las ventajas y desventajas de su uso. Para la presente investigación bibliográfica exploratoria, se compilaron y analizaron 15 artículos científicos, en los que las TIC se utilizaron como herramientas de aprendizaje para la enseñanza del vocabulario en inglés. Los resultados mostraron que las aplicaciones y los sitios web eran las TIC más utilizadas para enseñar vocabulario en inglés. Además, se encontró que las TIC eran útiles para motivar a los estudiantes y mejorar su desempeño en el aprendizaje. Los resultados también sugirieron que los docentes no aprovechan al máximo estas tecnologías a pesar del hecho de que investigaciones han demostrado que las TIC son herramientas de aprendizaje eficientes.

***Palabras claves:*** Tecnología. Enseñanza de inglés. Vocabulario. TIC.



## ABSTRACT

Vocabulary is considered an essential component of any language since, without it, communication could not take place. Information and communications technologies (ICTs) have played a crucial role in the teaching of vocabulary because of their practical features. However, teachers have been unable to take full benefit of them. Therefore, this research explored the use of ICTs as vocabulary learning tools. It aimed to answer the questions related to which ICTs have been proved to be more efficient in teaching English vocabulary and the advantages and disadvantages of their use. For the present explanatory bibliographic research, 15 scientific articles, in which ICTs were used as learning tools for teaching English vocabulary, were compiled and analyzed. The results showed that applications and websites were the most used ICTs to teach English vocabulary. Additionally, ICTs were found useful to motivate students and enhance their learning performances. The findings also suggested that teachers do not take full advantage of these technologies in spite of the fact that research has proved that ICTs are efficient learning tools.

**Keywords:** Technology. English Teaching. Vocabulary. ICTs.



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C.I: 0105024897



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Edgar Salvador Zuña Morocho

C.I: 0105024897





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## **DEDICATION**

To my parents, Mariana and Manuel, and relatives, who were patient and supported me  
during this long journey.

## INTRODUCTION

ICTs are useful devices that have been used as learning tools in education, and in this case, to teach English vocabulary. Certainly, vocabulary is a fundamental element of any language since, without it, no message can be transmitted (Wilkins, 1972). Therefore, as a method to include vocabulary in the learning of a language, ICTs have been integrated into the classrooms (Wu, 2018). ICTs as learning tools proved to be efficient in education. Consequently, ICTs were included in the Education Curriculum of Ecuador (IBEC, 2017). Although the integration of these tools in the curriculum and the effectiveness of them should be enough to embrace their use in the classrooms, teachers do not use or use them inefficiently (Dalton & Grisham, 2011). This situation may be caused by the lack of knowledge of teachers on how to use ICTs (Kurt & Bensen, 2017). For those reasons, this study tried to gather the information that would help to ease the incorporation of ICTs into the classrooms by displaying different types of ICTs that had been used to teach English vocabulary and also showing their benefits and shortcomings.

On the following pages, the background, statement of the problem, justification, and the research question were presented. Then a theoretical section was developed in order to give a clear idea about definitions and key terms. Afterwards, a review of the literature presented a brief description of each study considered for this research. These descriptions focused on displaying crucial information that helped to answer the research questions. After that, the methodology and the analysis, which showed the outcomes of this investigation, were described. Finally, the last part contained the conclusions and recommendations.

## Chapter I

### Description of the Research

#### 1.1. Background

Becoming fluent or mastering a language involves becoming proficient at a variety of skills (Goulden, Nation, & Read, 1990; Wu, 2018). In the English language, four primary skills are involved along with some secondary skills that one must know and understand to become fluent in this language. Although the four primary skills are important, the vocabulary skill is also essential for the learning process. Without this skill, it would be impossible to convey a comprehensible message even if the four main skills were used correctly. As Wilkins (1972) stated, "... without grammar very little can be conveyed, without vocabulary nothing can be conveyed" (pp. 111-112). Therefore, it is essential to comprehend what vocabulary is and how to learn it. The American Heritage dictionary of the English language defines vocabulary as "a list of words and often phrases, usually arranged alphabetically and defined or translated; a lexicon or glossary" (Vocabulary, 2020). In addition, vocabulary is one of the primary steps to follow when someone is learning a language (Yang & Wu, 2015). In order to achieve this goal in the learning process, many educational methods have been used. These methods consist of interactive materials such as flashcards, realia, games. Although these materials are interactive, many of them are based on memorization strategies that often students find boring. According to Cheng and Chung (2008), learners think that activities based on memorization make English vocabulary learning a tedious and inactive process, so learners tend to decrease their motivation towards learning English. The integration of technology in

the educational area made possible to overcome this problem because it allows interactive activities to be more engaging and meaningful for the students. This makes them become more assertive to learn and retain new vocabulary due to the type of interaction that technology offers.

## **1.2. Statement of the problem**

In the last sixty years, technology has evolved and changed our ways of interacting within society, especially in education. These changes have exposed new generations to a variety of technological devices that offer immersive ways to interact with others (Nikbakht & Boshirabadi, 2015). Kumar and Lightner (2007) stated that the learning process need to involve modern technological devices since students find it more familiar and motivating. In addition, due to the new perceptions of student learning, traditional strategies for learning vocabulary, such as rote learning, may be considered as boring activities by them because they focus mainly on the memorization of new words (Huang & Huang, 2015).

Wu (2016) affirmed that motivation plays an essential role in the learning process because learners need to feel affection about new knowledge. Technology may offer a way of motivating students because it changes traditional classes to more interactive processes. Also, it has allowed to motivate students as well as to improve their performance based on their interests (Huang, Huang, Huang, & Lin, 2012). These outcomes caused that many countries declare the use of technological tools in the classroom as a mandatory item to include in their curricula. For example, in the Education Curriculum of Ecuador, it is established as an obligation of the country to incorporate Information and Communication Technologies (ICTs) in the educational process and to promote the link of teaching with

productive or social activities (IBEC, 2017). Nevertheless, many teachers do not use these tools or, if they use them, they do not use them properly (Kurt & Bensen, 2017). This is often due to the lack of preparation by the teacher on the use of these types of technologies. As Dalton and Grisham (2011) stated, it is not clear yet how teachers can integrate ICTs into education in general, and into vocabulary teaching in particular. Furthermore, if teachers do not know how to use technology in the classroom, they cannot take advantage of these because they often apply these devices in any activity without knowing the effects that these technological tools may have on the different learning skills of English. The purpose of this study was to investigate the different technologies applied in the learning of vocabulary in English and also to find out their effects on learners' performance.

### **1.3. Rationale**

Khodaparast and Ghafournia (2015) stated, "... lack of a wide vocabulary causes serious problems, affecting language learners' performances in other areas such as reading, listening, speaking, and writing" (p. 118). That is to say, vocabulary is an essential skill that should be given attention from the beginning of the language learning process. Without it, students would have a difficult time when mastering the four main English skills. Therefore, the teacher should use tools that allow students to be active participants in the learning process through immersive and interactive classes.

According to Cagiltay (2007), students find more attractive the learning process when dealing with educational computer games. As a result, teacher-centered classes have been transformed into student-centered classes, which have allowed students to be active participants in the learning process (Watson, Mong, & Harris, 2011). In addition, since

ICTs are part of our environment nowadays, students show positive attitudes when it is applied to teach vocabulary. These technologies engage students to use them anywhere, so their learning could be expanded (Basoglu & Akdemir, 2010).

Research by Berns, Gonzalez-Pardo, and Camacho (2013) proved that technological learning tools like video games for learning vocabulary offer feedback that benefits students in their learning. Also, Franciosi, Yagi, Tomoshige, and Ye (2016) stated, “technological tools may offer an accessible alternative to learners and instructors with constraints on curricular flexibility” (p. 356). Therefore, the importance of this study relies on not only presenting an overview of these tools that can be applied in the classroom but also critically analyzing how they have been used. This research also shows what types of ICTs are used the most, or reported as the most appropriate to design activities that allow learning and retaining vocabulary in an easier way.

#### **1.4. Research questions**

The problems presented led to propose two questions for this study.

1. What types of technological tools have been used to teach English vocabulary?
2. What are the reported benefits and shortcomings of using technological tools to teach English vocabulary?

## **Chapter II**

### **Theoretical Framework**

#### **2.1. What are ICTs tools?**

Information and Communication Technologies (ICTs) were defined by Blurton (1999) as a “diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information” (p. 1). Although ICTs have been known as the infrastructural part that let to manipulate digital information, their definition can be extended to any technological devices that allow interacting with the digital world (Rouse, 2017).

##### **2.1.1. The importance of ICTs in education**

ICTs have become essential in all different fields that include institutions, organizations, and governments because they can offer many benefits to achieve different goals. One of these fields is education, which sees them as resourceful tools that facilitate the learning process because they change the way students assimilate and gain new knowledge (Mishra, Sharma, & Tripathi, 2010). That is, ICT tools support students in the learning process, making it easier and more practical. Also, ICTs have added new elements that allowed teachers to perform sophisticated learning methods inside and outside a classroom at any time (Kurt & Bensen, 2017)

##### **2.1.2. ICTs in the teaching of English**

Nowadays, ICTs play a fundamental role in supporting the learning process of the English language since they can add a variety of real contexts and interactive methods to



teach this language. This role transforms teacher-centered classrooms into student-centered ones. In fact, ICTs help to set up interactive learning environments and reduce learning anxiety, since students are motivated by the use of materials and devices because they are accustomed to using them in their daily lives (Smythe & Neufeld, 2010). Additionally, ICTs offer a wide variety of authentic materials, and situations that lead students to become more self-sufficient and responsible for their learning process (Watson et al., 2011). Finally, ICTs can improve English acquisition by offering helpful features such as instant feedback, adaptability, easy use, and interactivity (Çakici, 2016).

### 2.1.3. Types of ICTs

Since ICTs are versatile and adaptable to any kind of necessities, their classification varies depending on the role in a process. In the case of the instructional process, Lim and Tay (2003) classified them into four groups:

**Informative tools:** these ICTs are the tools that provide only information to the learners. This information comes from text, sound, graphics, or video. Some of these technologies are digital encyclopedias or websites.

**Situating tools:** these tools allow learners to interact with digital environments that expose them to experience different situations and contexts. Some of these tools are simulation games, learning games, handed-sensor games, and virtual reality.

**Constructive tools:** these are tools that allow users to manipulate, create information, or express the understanding of it. Some of these tools are websites, word editors, etc.

**Communicative tools:** these ICTs tools allow communication between teachers and students without the interference of physical barriers. Some of these tools are video chat, post, email.

Similarly, ICT can be classified by the type of software they are, which can be classified into the three categories presented below.

**Applications:** it is a type of software that is designed to perform specific functions based on the user needs (Rouse, 2019). Some of these tools are Office suite, learning apps, short message service, etc.

**Video games:** These are a type of software that is defined by The Merriam-Webster dictionary as “an electronic game in which players control images on a video screen” (Video game, 2020). Some of these video games are simulation games, learning games, handed-sensor games, etc.

**Websites:** The Merriam-Webster dictionary defines them as “a group of World Wide Web pages usually containing hyperlinks to each other and made available online by an individual, company, educational institution, government, or organization” (Website, 2020). Since Websites respond to the needs of their creators, their content or functionality is very variable. For this reason, some of their types are the two following:

**Social Media:** these websites are platforms that encourage their users to interact between them and share their ideas (Barraclough, 2019). Some of these websites are as follows: Facebook, Vine, Skype, Instagram, Twitter, Pinterest, etc.

**Educational:** these are platforms where people can look for or create content (Barraclough, 2019). Some of these websites are wikiHow, Wikitravel, Wikipedia, Storybird, etc.

## **2.2. What is vocabulary?**

According to Alfaki (2015), vocabulary is defined “as the words of a language, including single items and phrases or chunks of several words which convey a particular meaning, the way individual words do” (p. 1). While Hornby (1995) defines vocabulary as “the total number of words in a language; vocabulary is a list of words with their meanings” (p. 133). The Merriam-Webster dictionary defines vocabulary as “a list or collection of words or of words and phrases usually alphabetically arranged and explained or defined : lexicon” (Vocabulary, 2020).

### **2.2.1. Why is vocabulary important?**

Vocabulary is an essential element of the English language since it contains the lexicon that is used to communicate and understand ideas. As Khodaparast and Ghafournia (2015) stated, “... lack of a wide vocabulary causes serious problems, affecting language learners’ performance in other areas such as reading, listening, speaking, and writing” (p. 118). Also, Wilkins (1972) said that a message with the absence of grammar was still comprehensible, but a message with the absence of vocabulary was incomprehensible. Additionally, since the English language nature of adding new words to its vocabulary, a 7000 vocabulary is needed to be a proficiency English speaker (Nation, 2006). Because of the fact that vocabulary is the lexicon of a language, it should be one of the first steps to

follow when someone starts learning a new language. Due to the lack of vocabulary, learners face difficulties when mastering the four primary English skills.

### **2.3. Motivation**

Motivation is a common term in the educational field. Dörnyei (1998) suggested that “... motivation is responsible for determining human behaviour by energizing it and giving it direction” (p. 117). Also, Gardner (1985) stated that motivation was “the combination of effort plus desire to achieve the goal of learning the language plus favorable attitudes toward learning the language” (p. 10).

#### **2.3.1. Types of Motivation**

Dörnyei and Ushioda (2001) categorized motivation into two types: intrinsic motivation and extrinsic motivation. On the one hand, intrinsic motivation represents the behaviors that are impulsed by their own decision to satisfy themselves. On the other hand, extrinsic motivation represents the behaviors that are impulsed by external reasons in order to get or avoid something.

## **Chapter III**

### **Literature Review**

Through this literature review, articles that focused on the teaching of English vocabulary through ICTs as a learning tool were categorized, taking into account the role of the ICT tool that was used in their respective treatments. As a result, the four following sections were established.

#### **3.1. Informative Tools for Teaching English Vocabulary**

Some studies used ICTs as learning tools to teach English vocabulary focused on the presentation of information to accomplish this learning process. For this purpose, researchers chose websites and applications to perform their studies. For example, Khany and Khosravian (2014) conducted a study about the development of vocabulary through Wikipedia to analyze how it could help EFL learners to enhance their vocabulary knowledge. For their intervention, 36 Iranian students were selected to form two groups of the same size namely the intervention group and the control group. At the beginning of the study, a pre-test was given before the treatment as a placement test. During a period of three months, the two groups were instructed with their respective methods assigned. At the end of the instruction, the post-test was taken by the two groups. The findings showed that students that used Wikipedia performed better than students that used a traditional method because they improved their comprehension of the words by using features that this tool offered them. Additionally, researchers found that students were more motivated to learn, they were more collaborative with their partners, and they were less confused when they

used this website. However, researchers suggested that the need for equipment should be considered as an obstacle to the application of these kinds of classes.

Shukri and Puteh (2017) conducted a study to examine the efficiency of ‘Storybird’ as a tool to develop and enhance learners’ vocabulary. Fifteen learners took a two-hour reading class, where they read five stories. This study used a mixed-method along with a pretest, a posttest, and a reading survey to collect data. The results of the study showed that “Storybird,” which is a web page that allows creating stories using pictures, assisted learners to perform better during the test because it offered them pictures embedded in the story. As a direct consequence, learners were able to guess the meaning of words based on the pictures offered by this tool. Additionally, these graphic features created a friendly environment that allowed learners to be more active during the treatment. Although they found these positive results, they suggested that these results should not be generalized because of the small sample in this experiment.

Li, Cummins, and Deng (2017) conducted a study on the effects of texting to enhance students’ vocabulary learning to examine the learners’ perspective towards the effectiveness of the design, content, and intervention of the study. For the application of this study, 10 Chinese students were divided into two groups which were the treatment group and the control group. For gathering and analyzing the data, an interview, a pre-intervention survey, and a post-intervention one were used. During two months, the treatment group learned three words per day by receiving text messages, while the control group had to learn the same words through traditional instruction. The findings showed that the students had a positive attitude towards text messaging as a learning tool because of its content design, which was related to their studies. Also, they were motivated to learn the

vocabulary by the constant exposure to words that text messaging provided them.

Therefore, they enhanced their vocabulary knowledge. Although this study focused on text messages, it did not allow the participants to interact with the research team, and as a consequence, they were disappointed about that.

Wang, Teng, and Chen (2015) performed research on using the iPad to facilitate English vocabulary learning to examine whether this device significantly improves students' vocabulary acquisition. For the experiment, they had 74 participants and divided them into an experimental group and a control group. During 14 weeks, the experimental group had to learn English vocabulary using a vocabulary learning app called 'Learn British English WordPower' on the iPad, while the control group had to use a semantic-map method. In this study, the data collection was carried out by means of a pretest, a posttest, and a questionnaire. The findings showed that the experimental group had superior performance compared to the control group. Also, students expressed positive perceptions about the use of the iPad. Moreover, students were more active in the learning process because it offered them a more interactive learning tool.

Also, a study by Basoglu and Akdemir (2010) analyzed the effectiveness of mobile phones and flashcards to teach English vocabulary, and to know which of them was more effective for this learning process. They applied the treatment with 60 Turkish learners who were divided into a control and experimental group. During six weeks, both groups took a vocabulary learning course in which the experimental group made use of the 'ECTACO Flash Cards,' a vocabulary acquisition program whereas the control group used a traditional vocabulary acquisition technique with the same words of the vocabulary program. This mixed-methods study used a pretest and a posttest to collect the data. This research showed

that mobile phones improved the learners' ability to learn vocabulary, and these were more effective than traditional flashcards. In addition, mobile phones were considered more effective and entertaining by learners. Therefore, this study showed that mobile phones were useful and pleasant learning tools that engaged learners in vocabulary learning.

Furthermore, Mansouri (2015) conducted a study of vocabulary instruction that compared the effectiveness of flashcards software and word clouds to examine which of them allowed better retention of vocabulary on EFL learners. For the experiment, he selected 44 participants, and divided them into two treatment groups. Each of them had to use a specific learning tool in class for a month and a half. In this quantitative study, the collection and analysis of the data were carried out through a pretest and a posttest. His findings showed that the use of word clouds improved learning and retention of vocabulary compared to the flashcards software. The reason for these results was that all the words presented were related to the main word, and this helped the students to remember the meaning of the words by relating the meaning of the other words in the word cloud.

A study by Yang and Wu (2015) analyzed the effectiveness of mixed-modality learning strategies via e-learning systems as My English Vocabulary Assistant (MyEVA) with two modes (basic mode and preference mode), an Internet dictionary, and a traditional paper-based dictionary to teach English vocabulary. Also, they wanted to know which of these four options was more useful for the vocabulary learning process. They applied the treatment with 93 Taiwanese learners who had to follow four learning vocabulary phases of 20 minutes each. The students had to learn four lists of words by using one of the four learning techniques for each one. This study used a pilot test, a pretest, and a posttest to gather information. This research suggested that students retained vocabulary for a longer



time when they used MyEVA, which also improved the learners' vocabulary acquisition. Although they found that learners with higher learning attitudes who chose the preference mode got better results, learners with lower learning attitudes chose the easy option, which caused their learning effectiveness to be low.

Finally, Huang et al. (2012), in their study of employing a ubiquitous English vocabulary learning (UEVL) system to teach English vocabulary, analyzed the learners' perspective towards this system. They applied their research with 40 Taiwanese participants that were divided into two groups. For the formation of the groups, they took into account the learners' habits (active or passive) towards the learning process. For the collection of the data, a qualitative method was applied through a questionnaire that analyzed the learners' opinions about the UEVL system after using it in a learning activity. The findings showed that the use of ubiquitous technology combined with videos could make active or passive learners use the UEVL system. Furthermore, the results indicated that active learners looked for a useful system; in contrast, passive learners looked for an easy one. These results suggested that ubiquitous technology could motivate any learners to use these types of tools, but due to the different learners' attitudes, several factors should be considered for the development of UEVL systems.

### **3.2. Situating Tools for Teaching English Vocabulary**

Likewise, video games as situating tools were used to teach English vocabulary because of the interactive and immersive nature of these ICTs. Researchers created or chose these video games for their studies since they wanted to know the effectiveness of these technologies as learning tools. Wu (2018) conducted a study to examine how effective a

mobile game-based learning integrated with the attention, relevance, confidence, and satisfaction (ARCS) motivation model was for enhancing learners' acquisition and learners' motivation for studying English vocabulary. This motivation model was selected because it could stimulate and enhance students' motivation towards the learning process. The research involved 62 first-year students of a Taiwanese university, who were divided into two groups: the traditional group and the game-based group. Both groups received the same course content for one 18-week semester, but the game-based group also used the mobile game for the vocabulary review section. At the end of the course, both groups took the posttest and filled an ARCS learning motivation questionnaire. The results showed that digital games improved the learning effectiveness by reducing the fear toward the learning process and decreasing the problems that students found. Also, it transformed the traditional learning process into an interactive one, so students were encouraged to be active and independent subjects in this process since they were allowed to enjoy and change routine instructions into a dynamic learning process.

Also, Huang and Huang (2015) conducted a study where they created a handled sensor vocabulary game based on a scaffolding strategy to observe the effects of it on the enhancement of learners' motivation and performance for learning vocabulary. For the application of this study, 65 students of a university in Taiwan were divided into two groups: the experimental group and the control group. For the gathering of the data, a pretest, a posttest, a questionnaire, and a delayed test were used. Both groups used the handled sensor-based vocabulary game for 100 minutes, but the experimental group was the only that used the scaffolding aid integrated with the video game. The findings of the research showed that this video game helped low-achieving learners to acquire a more

extensive vocabulary, and to enhance their motivation towards the vocabulary learning process by helping all learners to concentrate on the activities through the assistance of the game. However, the video game did not help students to improve their retention of vocabulary because the vocabulary test that the researchers applied required little effort for high and medium performance learners. Furthermore, the video game did not include a drill and practice activity, which could have helped students to store the new vocabulary in their long-term memory. For that reason, they recommended that it was necessary to consider the appropriate learning strategy to design video games because these were not effective learning tools without it.

Another study by Franciosi et al. (2016) analyzed the effects that a simple simulation game along with a flashcard game had on EFL learners to retain vocabulary. In this study, 213 participants enrolled in an EFL course developed by Franciosi at a Japanese university. For the treatment, four class sessions were performed, and each session lasted 90 minutes. In the first session, a pretest was taken by the students, then in the second session, an experimental class was performed in which the simple simulation game along with a flashcard game was used. Next, a control class was performed by using only the flashcard software for the third session. Finally, in the fourth session, a posttest was administered, and after 11 weeks, a delayed test was performed. The results showed that learners from the experimental group tended to increase the retention of vocabulary because they created more associations between new words and their non-linguistic representations. However, the researchers mentioned that these results could not be enough to justify their implementation in the learning process as a consequence of the small effect of this treatment produced. In addition, they mentioned that the age of the students could be a

factor that affected the effectiveness of their treatment since older students are accustomed to learning in a more traditional way.

Zhonggen (2018) conducted a study to examine the effectiveness of serious game-aided and traditional English vocabulary acquisition, and to find out which of them was more practical to teach English vocabulary. He performed two experiments. In the first one, 95 participants cooperated, and 96 participants cooperated in the second one. In both experiments, the participants were randomly assigned to the following three treatments: the interactivity-prone serious game, the less interactivity-prone serious game, and the traditional treatment. This was a mixed-methods study, and used a pretest, a posttest, and an interview to collect the data. For the treatment, all groups made use of the learning tools that were assigned to each one to learn and practice new vocabulary at least 2 hours per day during 70 days. At the end of the experiments, he found that serious games helped learners to remember more words compared to less serious games and traditional approaches, and also the assistance feature of the games motivated them to learn. Likewise, learners found games fun, exciting, useful, and motivating to learning English vocabulary. However, this study indicated that gender was a relevant factor in serious game-aided English vocabulary in which women were outperformed by men. Therefore, he suggested that it was crucial to consider the application of methods that compensate for this weakness during the execution of a class.

### 3.3. Communicative Tools for Teaching English Vocabulary

In the same way, a pair of studies made use of the communicative features of social media websites to teach English vocabulary, although they were not designed for that purpose. For example, a study to analyze the effectiveness of asynchronous/synchronous approaches to teach EFL learners English vocabulary was carried out by Khodaparast and Ghafournia (2015). At the beginning of the study, they took a placement test to exclude any intermediate level participants. Then, a group of 120 Iranian participants was selected and divided into four groups: asynchronous group, synchronous group, integrated group, and control group. After the participants took a pre-test, the treatment was applied for 10 sessions of one hour each week. For the treatment, the synchronous and integrated group used Skype as a medium to communicate with the teacher and classmates before or during the class. When the treatment ended, the same pretest as a posttest was taken to check the efficiency of these tools. The results showed that the synchronous approach allowed to enhance students' vocabulary learning performance by increasing the opportunities to communicate and obtain feedback from their teachers and peers. On the other hand, the asynchronous approach improved students' vocabulary learning performances by direct exposure to the learning tools that allowed them to maintain a positive attitude towards the language learning process. Also, the combination of these two approaches had better results in vocabulary development.

A study by Nikbakht and Mehrabi Boshrabadi (2015) of the potential of Social Networking Sites (SNSs) on the learning of English vocabulary was applied to know the impact that Facebook had on EFL learners' performance and motivation. They selected 100 Iranian learners with the same level of language proficiency by using a pretest and then

divided them into an experimental and a control group. Then, both groups took a course that targeted 20 lexical words by using Facebook in the experimental group and traditional instructions in the control group. After five weeks, a posttest and a questionnaire were administered to check the effects of the treatment. The results showed that Facebook allowed learners to retain vocabulary, so their development of vocabulary knowledge was safe. They also pointed out that these results were a consequence of the constant rehearsal that this technological learning tool offered them. Similarly, the questionnaire test showed that learners thought that Facebook was a useful learning tool to learn vocabulary. However, they indicated that due to the small sample, these results should not be generalized for all English learners.

### **3.4. Constructive Tools for Teaching English Vocabulary**

Finally, a social media website was used as a content creation tool that allowed learners to develop their vocabulary learning process. Kurt and Bensen (2017) conducted a study of the enhancement of vocabulary through the use of Vine Vocabulary Videos (VVs) to analyze how this technology affects EFL learners' performance and perception for learning vocabulary. For their intervention, 32 university students from North Cyprus were selected to form two groups of the same size: the intervention group and the control group. For the collection and analysis of the data, a pretest, a posttest, and an interview were applied. During the six weeks of the intervention, the intervention group had to develop 30 Vine videos that allowed them to practice their vocabulary. The findings showed that the implementation of VVs helped learners to become more creative, and to retain vocabulary by producing VVs. Thus, their vocabulary also increased. Likewise, because of the social nature of this learning tool, learners were more active since they could

interact, and collaborate with their classmates inside and outside the classroom. However, some students indicated that the VVV process was laborious and unsatisfying.

### **3.5. Effects in Motivation When Using ICTs as Vocabulary Learning Tools**

Motivation is an essential part of the learning process since it helps learners to be interested in doing something (Dörnyei, 1998). Considering the importance of this factor, some researchers also observed the effects that ICTs as learning tools had on motivation when learning English vocabulary. They found that ICTs had motivated learners in two different ways, intrinsic and extrinsic motivation.

In the case of intrinsic motivation, learners were encouraged to be active by their own will since ICT tools were friendly and useful for them. In some studies, the features such as assistance, materials, and tools that these ICTs offered motivated learners to be more independent with their learning process (Huang et al., 2012, Khany, & Khosravian, 2014). For example, in the study of Li et al. (2017) about learning vocabulary through text messages, learners were motivated to learn because the content of the study was related to their course content. In addition, some useful tools such as links and assistance allowed learners to be more confident about their progress (Wang et al., 2015; Huang & Huang, 2015). Other studies showed that ICTs used as a communicative medium were effective to motivate learners to a more collaborative process that helped them to share their opinions and to provide feedback among their classmates and teachers (Khodaparast & Ghafournia, 2015; Kurt & Bensen, 2017; Khany & Khosravian, 2014). Finally, in some studies, learners changed their attitudes and perceptions about these ICT tools when they were encouraged

to use these tools that helped them to improve their vocabulary knowledge (Wang et al., 2015; Wu, 2018).

Regarding extrinsic motivation, only a few studies showed that learners wanted a reward for their excellent performance. Studies by Wu (2018) and Zhonggen (2018) found that learners were stimulated to use these ICT tools because they offered a reward system that displayed the progress of the learners. Finally, Basoglu and Akdemir (2010) found that students had a high motivation since they wanted to pass a test, so they preferred to use these learning tools.

## **Chapter IV**

### **Methodology**

For this study, an exploratory bibliographical research was made to analyze the effects of teaching English vocabulary through ICTs as learning tools. This research type was applied because it resolves an issue that is not clear in order to have a further understanding about it, but without giving a definitive solution (Bhat, 2019).

For this task, search engines as Google Scholar, Research Gate, Education Resources Information Center (Eric), ScienceDirect, and International Journal of Information and Education Technology (IJJET) were used to find the articles. Likewise, the keywords used for the research were technology, games, mobile, English, vocabulary, ICT, improve, learning, teaching, digital, acquisition, and effective. Then, specific criteria were used to identify fifteen articles that provided essential information for the investigation. These articles met the following characteristics. First, the year of publication was from 2008 up to present because many technologies that exist today began to appear or have



evolved during this decade; therefore, it was more reliable to get data from these recent years. Additionally, the articles were written in English and focused on teaching English as a second language and as a foreign language. The age of students was considered between 17 and 30 years old because a previous analysis of the articles showed that this age range was the most studied. Moreover, the articles that used a qualitative, quantitative, or mixed-method were revised because they allowed analyzing quantitative and qualitative aspects of the students. Finally, for the analysis, the articles were grouped mainly into two categories. The first category was based on the most common ICTs used in the vocabulary learning process. The second one focused on the effects that technological learning tools had on the teaching of English vocabulary in order to show their benefits and shortcomings. Based on these criteria, the following analysis was made to answer the research question previously presented.

## **Chapter V**

### **Analysis**

The analysis considered the 15 articles examined in the literature review and coded them by following specific criteria to answer the research questions. That is to find out what types of technological tools are the most used to teach English vocabulary and the benefits and shortcomings that these ICTs have produced. The present analysis of this synthesis considered the data exhibited from Table 1 to Table 4.

### 5.1. Most common ICT Tools used to teach English Vocabulary

Table 1. ICT Tools used to teach English Vocabulary

Types of ICTs according to instructional activities	No. of studies	(%)
<b>Informative tools</b>	<b>8</b>	<b>(53)</b>
Websites (Educational)	2	
Applications	6	
<b>Situating tools</b>	<b>4</b>	<b>(27)</b>
Video games	4	
<b>Communicative tools</b>	<b>2</b>	<b>(13)</b>
Websites (Social media)	2	
<b>Constructive tools</b>	<b>1</b>	<b>(7)</b>
Websites (Social media)	1	

Note. N=15.

Table 1 showed that the 15 studies were grouped into four types of ICT tools to teach English vocabulary based on the role related to instructional activities.

This table showed that in order to accomplish the treatments of the investigations, eight (53%) studies used ICTs as a source of information to teach English vocabulary. In this case, the ICT tools only provided information for the learners; that is, the teachers gave words to the students, and they had to look for these words either in educational websites such as Wikipedia and Story Bird or in applications such as MyEVA, UEVL system, Wordle, ECTACO, Word Matters, and Learn British English WordPower. The analysis of table 1 showed that there was a strong preference to use ICTs as informative tools in the

learning process despite these tools offer more options such as communicative and constructive features. For example, a study focused on text messaging to teach English vocabulary just made use of this feature as a presentation of flashcards without using its communication capabilities (Li et al., 2017). Similarly, Shukri and Puteh (2017) used Storybird, a story maker tool, as a reading tool to teach vocabulary without taking account of their main feature.

On the other hand, four (27%) of the studies used video games as situating tools which allowed students to interact with digital environments. These situating tools were preferred by some researchers because they found their features such as assistance, immersion, and interactivity useful to teach English vocabulary. These features allowed learners to overcome problems and feel comfortable and confident with their learning progress. These results can be observed in the studies of Wu (2018) and Huang and Huang (2015) that used video games integrating assistance which helped learners concentrate and resolve problems during the learning process. Another study used video games with a progress system as a way to keep learners motivated to learn since it showed them their vocabulary learning progress (Zhonggen, 2018).

Also, two (13%) studies used ICTs as a communication medium in order to enhance communication between teachers and students. In this case, two social media websites (Skype and Facebook) were used to teach vocabulary just by making use of video conference and text messaging. These studies showed that students were allowed to receive feedback and rehearse their new vocabulary; by doing this, they were able to retain it (Khodaparast & Ghafournia, 2015; Nikbakht & Mehrabi Boshrahadi, 2015).

Finally, 1 (7%) of the 15 studies used ICT tools to create content in order to develop vocabulary. One study made use of a constructive tool to build up vocabulary by creating videos using Vine, a social media website. Although this ICT was mainly used to create videos, it also allowed sharing opinions and providing feedback between their classmates because of the social nature of this website (Kurt & Bensen, 2017).

Table 1 also shows that these four categories made use of three specific software to teach English vocabulary. This indicates that in order to accomplish the treatments of the investigations, four (27%) studies used video games as a learning tool, five (33%) studies used different types of websites (educational and social websites) for the learning process, and the last six (40%) studies employed applications for teaching vocabulary.

The analysis suggests that there was a similar tendency to use these three types of ICTs as learning tools to teach English vocabulary; just having a minimal variation of 7% between websites and applications, and a variation of 13% between video games and applications. Therefore, these minimal differences showed that applications were used as learning tools to teach English vocabulary by 40% of the researchers in their studies. This phenomenon would be because some researchers indicated that ICT learning tools are more useful when they are designed based on different factors such as students' age, students' attitude, effective learning strategies that are present in the learning process (Huang & Huang, 2015; Khany & Khosravian, 2014; Li et al., 2017). This result proposes that applications are the most used ICTs tools to teach English vocabulary because they can be designed based on the needs of the curricula of students. Although video games and websites share similar features with applications, they were less preferred during the treatments.

## 5.2. The purpose or design of the ICTs

Table 2. Learning tools purpose and design

Purpose and learning design		No. of studies	(%)
<b>Adapted for</b>		<b>7</b>	<b>(40)</b>
<b>teaching English vocabulary</b>	Video games	1	
	Websites	5	
	Applications	1	
<b>Designed for</b>		<b>9</b>	<b>(60)</b>
<b>teaching English vocabulary</b>	Video games	3	
	Applications	6	

*Note.* N=15 Some studies were counted in more than one category because some studies used two or more ICTs in their treatments.

Table 2 showed the original purpose and design of the ICT tools that were used in the studies. For the respective categorization of this table, specific criteria were followed. The two main categories, Adapted and Designed for teaching English vocabulary, were grouped by considering if the ICT tools were or were not explicitly created for teaching English vocabulary. Therefore, the first category grouped all the ICTs that were not designed for teaching purposes, such as social media, entertainment, and productivity. On the other hand, the second category grouped only the ICTs that were focused on the educational field, specifically on teaching English vocabulary.

Interpreting table 2, it showed that nine (60%) studies created their own ICT tools for conducting the treatment; on the other hand, seven (40%) studies preferred to adapt

existing ICT tools that were not intended to teach English vocabulary for their experiments; that is, each group had a different preference for choosing their ICT tools. The adapted group preferred to use educational and social websites, while the designed group preferred to use applications. Applications were preferred by researchers as they could consider different factors such as age, attitude, gender, and academic level of the students existing in the learning process. This implies that there is a little difference between the two groups, which shows that adapted ICTs are as effective as designed ICTs to teach English vocabulary.

The analysis of Tables 1 and 2 indicated that there was a preference for using applications and websites (two) as informative tools, although these ICTs have extra features that can enrich the vocabulary learning process. This phenomenon of not taking advantage of these ICTs should be due to the fact that researchers preferred to create their own learning tools for their treatments. However, it is worthy of being aware that some researchers did not have any problems adapting non-designed ICTs to teach English vocabulary.

### 5.3. The benefits of ICTs

Table 3. Benefits of Using ICTs

Benefits		No. of studies	(%)
		14	(93)
Learning performance	Improve vocabulary	14	
	Ease learning	5	
	Enhance vocabulary retention	6	
		13	(86)
Learning motivation	Intrinsic motivation	13	
	Independent learning	5	
	Collaborative learning	3	
	Learners' Attitude	11	
	Learners' Perception	7	
	Extrinsic motivation	3	
	Independent learning	2	
	Collaborative learning	1	
	Learners' Attitude	3	

Note. N=15. Some studies were counted in more than one category.

Table 3 focused on the positive effects of the implementation of ICTs caused when they were used as learning tools for teaching English vocabulary. The criteria considered for this table were based on the students' performance and motivation in the vocabulary learning process, which showed benefits related to students.

This table showed that 14 (94%) studies support that ICTs were effective as learning tools for teaching English vocabulary since they helped students to develop their English vocabulary by improving their retention and easing the learning process. These results are in accordance with Mishra et al. (2010), who indicates that ICTs are tools that help students to accomplish their learning process. For example, ICTs allowed students to retain English vocabulary for a more extended period of time because they were able to rehearse and experience a constant exposure towards the target vocabulary that allowed them to associate the words with their non-linguistic representations (Li et al., 2017; Nikbakht & Mehrabi Boshrabadi, 2015; Kurt & Bensen, 2017; Franciosi et al., 2016; Mansouri, 2015). Additionally, ICTs made classes more interactive since they integrated assistance features and significant materials that allowed students to relax and have a better comprehension of the vocabulary (Shukri & Puteh, 2017; Huang & Huang, 2015; Wu, 2018; Khany & Khosravian, 2014). Therefore, ICTs as vocabulary learning tools should be considered as essential resources that positively influence the improvement of the learning performances of students because they aided students to learn new vocabulary by creating strong associations and easing their vocabulary comprehension.

Likewise, the employment of ICTs in the learning process improved not only the students' learning performance but also their motivation, which was the main factor that determined the students' behavior to learn the new vocabulary. 13 of the 15 studies showed that students were affected by intrinsic motivation since they used these learning tools by their own will in order to improve their vocabulary. This kind of motivation changed some aspects in the learning process, such as independent learning, collaborative learning, learners' attitude, and learners' perceptions, which boosted the participation of students.



This table showed that in five (33%) studies, ICTs were encouraging vocabulary learning by offering features such as assistance and extra materials (links, videos, and content) that transformed teacher centered-classes into student centered-classes (Khany & Khosravian, 2014; Wang et al., 2015; Wu, 2018). Also, in three (20%) studies, collaborative learning was an efficient way to motivate students as they were able to interact and collaborate with their teachers and classmates, which also allowed students to help each other during the learning process (Khodaparast & Ghafournia, 2015; Khany & Khosravian, 2014; Kurt & Bensen, 2017). Furthermore, 11 (73%) studies indicated that students had a positive attitude when using these ICT tools as a result of the exposure to materials and content related to their classes used to teach vocabulary, which made students more willing to learn (Li et al., 2017; Huang et al., 2012). Finally, seven (47%) studies showed that students were engaged with the usage of these ICTs during the treatments since they found these learning tools interesting, useful, fun, and beneficial for the vocabulary learning process. As a direct consequence, some students indicated that they would continue to use these ICTs. (Shukri & Puteh, 2017; Kurt & Bensen, 2017; Wang et al., 2015; Nikbakht & Mehrabi Boshrahadi, 2015; Yang & Wu, 2015). Summing up, all the results showed that motivation is a fundamental part of the learning process since it is the impulse that pushes someone to do something (Dörnyei, 1998).

On the other hand, extrinsic motivation was also found in these studies in which these learning tools encouraged students to use them since they integrated content that the students were interested in learning and had friendly features that change traditional learning methods. Table 3 showed that students wanted to interact with others, and also, some of them were stimulated to continue their studies by themselves. These results were

caused by the system of progress and reward that were included with the ICTs. Also, these three studies produced changes in the students' attitudes since they were motivated to use the ICTs by the assistance and accessibility of these learning tools (Basoglu & Akdemir, 2010; Zhonggen, 2018; Wu, 2018).

Based on the referred facts, ICTs were effective learning tools that enhanced the acquisition of English vocabulary of the students for the fact that ICTs facilitate the learning process by offering useful features to them. Similarly, ICTs improved the students' motivation by exposing them to a more interactive and collaborative environment that made them be an active part of the learning process.

#### 5.4. The shortcomings of ICTs

*Table 4. Shortcomings of Using ICTs*

Shortcomings	No. of studies	(%)
<b>Design problems</b>	<b>6</b>	<b>(60)</b>
Lack of features	2	
Appropriate strategy	3	
Equipment	3	
<b>Students' factors</b>	<b>6</b>	<b>(60)</b>
Students' level	1	
Students' attitude	3	
Gender	1	
Age	1	

*Note.* N=10. Some studies are counted in more than one category.

Table 4 grouped the shortcomings that the use of ICTs caused when they were applied as vocabulary learning tools. A similar criterion of table 3 was considered to categorize the adverse effects but also taking into account the failures of the ICTs that were applied in the treatments. The analysis showed that 60% of the shortcomings were the result of problems in the design of the ICT tools used for the treatment. For example, two (13%) studies did not integrate features such as a system of practice and communication option. This fact was responsible for the low retention of vocabulary by students and the disappointment of them about the treatment because of the inability to communicate with researchers. (Li et al., 2017; Huang & Huang, 2015). Also, three (20%) studies indicated that the use of ICTs along inappropriate strategies could reduce the effectiveness of them since students were not able to retain the vocabulary because of the application of an inadequate test and an inadequate distribution of time for the rehearse of the new vocabulary (Huang & Huang, 2015; Franciosi et al., 2016). Finally, three (20%) studies showed that equipment was also a factor that affected the development of the experiments since some of them needed devices that were compatible with their ICTs. For this reason, some students were excluded from these experiments or assigned to the control groups. (Basoglu & Akdemir, 2010; Kurt & Bensen, 2017; Khany & Khosravian, 2014).

On the other hand, six other (60%) studies indicated that students' factors such as gender, age, academic level, and attitude reduced the effectiveness of the ICTs for teaching vocabulary. For example, high performed students did not improve their vocabulary knowledge because researches did not design an appropriate test that correctly evaluated their academic level (Huang & Huang, 2015). As well, two (20%) studies revealed that gender and age could discourage students from using these ICTs. As Zhonggen (2018) and

Franciosi et al. (2016) studies showed that women and older people performed poorly compared to their counterparts because they, women and old people, preferred to learn vocabulary using a more traditional method. Finally, three (30%) studies demonstrated that students' attitudes impacted negatively in their performance because they chose the easy option that these learning tools offered to them, which was the less effective at the moment of reviewing the new vocabulary (Huang et al., 2012; Yang & Wu, 2014).

As this table showed, many of the problems that occurred in these studies were caused by not considering certain factors that are always present in the classroom. These factors were the leading causes that reduced the effectiveness of the ICT tools that were used in the treatments. As well, it showed that it is crucial to show students the more effective learning tools since they facilitate or enhance their vocabulary learning process.

## **Chapter VI**

### **Conclusions and Recommendations**

#### **6.1. Conclusions**

Vocabulary has been defined as the list of words used to convey any kind of message in a language (Alfaki, 2015). Thus, the lack of it can hinder the learning of a language since messages are still comprehensible without clear grammar structures, but incomprehensible without vocabulary (Wilkins, 1972). Due to those facts, Kurt and Bensen (2017) stated that it was crucial to fit vocabulary in the learning language process. As a response, ICTs have been integrated as vocabulary learning tools because they changed traditional learning environments into interactive ones, which were more in accordance with nowadays student learning standards (Kumar and Lightner, 2017). In spite of the fact

that extensive research has proved the value of ICTs in this field, teachers have been unable to take full advantage of these technologies because of their illiteracy on how or when to use these learning tools (Khany & Khosravian, 2014). Therefore, this study focused on these questions ‘What types of technological tools have been used to teach English vocabulary?’ and ‘What are the reported benefits and shortcomings of using technological tools to teach English vocabulary?’ in order to ease the integration of ICTs into the classroom.

The outcomes of this study showed that informative ICTs were preferred as a way to teach English vocabulary since it is an easy way to employ them. Although these ICTs offer more features that would make classes more interactive and constructive, teachers preferred to use applications and websites to show the content that the students have to learn. This situation might suggest that teachers did not exploit these learning tools, or that they did not know the ICTs that they were using in their classes deeply. Additionally, the use of designed or not designed ICTs for teaching English vocabulary was similar in the number of studies, and the results were positive. These facts indicated that there was not a significant problem when using ICTs that were not focused on the educational field for accomplishing the learning process.

Similarly, it was demonstrated throughout this study that ICTs were practical tools that enhanced the learning of English vocabulary. This enhancement occurred due to their features that exposed students to significant content for long periods of time, which helped them to retain new knowledge. Also, these learning tools motivated students to be active participants in the process of learning since students found ICTs useful and joyful. On the contrary, ICTs could also be ineffective learning tools when factors related to the students,

such as age, gender, attitude, and academic level, are ignored by the teacher. That is why it is crucial to consider these factors when designing or integrating ICTs in the classroom.

Finally, this study would motivate teachers to use ICTs for teaching English vocabulary since it was proved that these technologies were useful to enhance learning performance and motivation on students. Similarly, this research would help teachers to have a better idea about what type of ICTs they should use for their lessons since it displayed different ways of how these learning tools have been used, and what factors should be considered at the moment of developing or integrating ICTs in the learning process.

## **6.2. Recommendations and Limitations**

Studies have demonstrated that the use of ICTs in the classroom for teaching English vocabulary improved the performance and motivation of students. For these reasons, teachers have to take advantage of these tools for enhancing the learning process. Likewise, teachers should not only consider educational ICTs for this process but also non-educational ICTs since research has proved their effectiveness as learning tools. In addition, when integrating these tools into the learning process, teachers have to consider some factors such as students' age, gender, attitudes, and academic level.

This research focused only on the ICTs that have been used to teach English vocabulary and their effects on the students' performance. Hence, this study did not embrace other English skills, which could enrich the results. Similarly, the participants' age range established for this study limited the studies to be considered. In addition, this limitation made it difficult to find studies which were applied in Latin America, and only



allowed to find studies that were performed in Asia and the Middle East. Therefore, the context of the different researches would not have similarities with our context.

Further research should consider a wider age range as well as focus on more English skills for widening the area of study. Also, this study showed that the creation and integration of ICTs as learning tools were feasible as a way of teaching English vocabulary. For that reason, it would be interesting to create an ICT tool focused on vocabulary learning and apply it within our context while considering the errors of previous studies in order to avoid similar problems.

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## Appendix 1

### List of Primary Studies for Analysis

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